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A Strategic Planning Paradox: The Adoption & Implementation of Telecommunications-based Information Systems

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Abstract

Telecommunications-based Information Systems (TIS) are seen increasingly to have the potential to be of critical strategic importance to firms. The rationality of these firms in their strategic decision-making to adopt and implement TIS systems, however, appears not to have been adequately captured in current strategic planning models. Strategic TIS planning (STISP) models available appear to be incomplete. Strategic Information Systems planning (SISP) models may be of limited practical utility if TIS is a special instance of strategic planning.

Following a review of current models and comparison with the case of a strategic TIS-using firm, TIS planning is presented as being a special instance of strategic IS planning. Paradoxically, it appears that while TIS requires separate treatment, it also needs tight integration with SISP.

1 Introduction

Telecommunications-based Information Systems (TIS) present firms with the potential to radically redefine current forms and norms of conducting business. This transformation may be affected through elimination of product and service constraints due to time and geographical location as well as by the reengineering of a large part of an organisation's existing control and coordination processes. (Keen 1988, Earl 1989, Hammer 1990, Keen 1991, Grover and Goslar 1993).

In order to gain this potential, however, investment in TIS represents massive financial commitment, major disruption and significant exposure to failure for both systems and the organisation. These risks may be minimised with careful strategic planning. This paper seeks to review current IS and TIS strategic planning tools to determine the completeness of their TIS adoption decision-making rationality and, to the extent that existing models may be considered incomplete, to make recommendations for improvement of both theory and practice.

TIS represents one type of information system (IS) in which the creation of an advantage to business is based on capabilities for distributed interaction and processing. A telecommunications network is the infrastructure which enables these types of information systems. Although current TIS include computer processors as an integral component the primary significance of TIS lies in spatial and temporal dimensions added by the network to computer processing capabilities. Within an organisation, TIS could incorporate voice, data, image and video transmissions and include telephone, radio, satellite, email, fax, TV, video conferencing and interactive multimedia technologies in local, metropolitan and wide-area networks.

Surveys of IS managers in the USA and UK on major issues indicate telecommunications have become increasingly significant both as an enabling technology and as an issue of importance in its own right. (Niederman et al 1991, Galliers et al 1994). The UK survey revealed that management of distributed systems was seen to be the single most important source of problems in the future.

2 Current strategic TIS planning models

Strategic planning for TIS has emerged over the last decade as new area for both research and practice. During this time the level of attention from researchers has not been commensurate with the level of importance allocated by industry. The literature reveals only four theoretical models concerned with strategic TIS planning. Runge (1985) focuses on a firm's linkages with its customers and proposes both success factors and a framework of opportunities for TIS use in this area. A major concern with this model is that there is no attempt to integrate the processes or outcomes with strategic IS planning. Keen (1988, 1991) focuses on the structural changes necessary to firms in order to exploit TIS. Keen's work is at a high level with outcomes consisting of organisational area and activity checklists. Premkumar and King (1990) propose a conceptual model of STISP processes. Based on exploratory survey research, the authors recognise that the model is incomplete and call for further research. As with Runge, this model is shown with no explicit linkages with SISP. Grover and Goslar (1993) propose a stages model of the evolution of TIS which is intended to assist prescriptive TIS planning. This model suffers from shortcomings associated generally with stage models, which do not appear to be addressed.

In summary, none of the strategic planning models dealing with the specific case of TIS appear complete. These models suffer from limitations such as the lack of integration with strategic IS and business planning (Runge 1985, Premkumar & King 1990); limited practical utility as a result of its high level approach or historical perspective (Keen 1988, Grover & Goslar 1993); or failure to address structural problems inherent to the type of model (Grover & Goslar 1993).

3 Current strategic IS planning models

Having considered existing strategic TIS models and emphasised the importance of their integration with SISP models, a range of SISP models (including Rockart 1979, IBM 1981, Huff and Munro 1985, Porter and Millar 1985, Arthur Andersen 1987, Earl 1989, Galliers and Sutherland 1991, MacDonald 1991, Singh 1993) were reviewed to identify their capability to incorporate strategic TIS

planning. Only two of the models (Huff and Munro and Arthur Andersen) consider IT assessment and adoption. Planning at this level is clearly of particular importance to TIS. These SISP models were further examined to identify those which explicitly acknowledge the potential significance of TIS and those which provide specific direction to organisations seeking to use TIS strategically. While several of the models acknowledge TIS's potential, none deal with strategic TIS decision-making practices.

Both TIS and IS strategic planning models appear to be incomplete in their understanding of the rationality of strategic TIS decision-making or not to have specifically considered strategic TIS at all. Existing TIS models incorporate an argument for the treatment of TIS as a special instance of SISP. This argument is not persuasive in models which appear incomplete and which are lacking contextual details. A case study based on qualitative research is considered to present a rich picture context within which the argument can be examined.

4 Case ABC

ABC is a well established diversified group with its primary operation in financial services. The Group has total assets under management of some $US 4.5 billion; revenue in 1993-94 of $US 1.3 billion; more than 3,000 staff located in over 100 locations and more than one million customers. The Group sees its business environment as being very volatile. Its operations are highly successful by industry standards. There are 10 divisions in ABC, each with a general manager reporting to the CEO. The CEO and the general managers comprise the Executive Committee. One of the divisions is Information Services Pty Limited (ISPL) which was established in 1989 to assign responsibility for IT services and to facilitate charge-back. ISPL provides IS services only within the Group.

Telecommunications are well established in ABC as key enabling technologies. The Group is a mature user with voice, data and radio transmission. The strategic benefits of telecommunications are widely accepted by senior management. The Strategic Planning Group (comprising the Executive Committee plus planners) conducts on-going environmental scanning to identify appropriate business opportunities. A formal strategic business plan is prepared and circulated to all senior management to be used as input to divisional strategic plans. The divisions prepare annual proposals for strategic plans. ISPL provides input to divisional business planning through IS client managers and to the Group through ISPL's own proposals. The Telecommunications Department provides its own plan which is integrated with the ISPL plan. The Executive Committee considers, revises and approves divisional plans. Each division and the Group has formally stated and assessed performance evaluation targets. These targets relate directly to the Group's overall business performance.

An example of how strategic TIS planning and implementation occurs in the ABC Group can be seen in the current project to replace the PABX system. The anticipated cost of this replacement is $US 7.5 million. Payback is anticipated in 2.3 years. Motivation for the replacement was: strategic direction; user satisfaction; and the availability of new telecommunications technologies which enabled services to the business to be improved.

Decision-making factors were, in order, the strategic direction, long term business and technology planning and the financial benefit. Decision-making processes in the PABX project are typical of those adopted at ABC for large projects: strategic business requirements established; project team formed; formal user requirements determined; the value to business of requirements assessed; requirements approved and prioritised by users; Request For Proposals prepared based on requirements; responses reviewed with user management; Request For Quotation issued; equipment proposed in supplier responses inspected; reference sites visited; suppliers evaluated; contract negotiated; approved by CEO and Board; and conversion, training and implementation conducted and reviewed. Analysis of this case yields some important themes:

1. Strategic planning for TIS is conducted as a special case within IS planning. Reasons for this are explored below.
2 Strategic business planning is effective with formal mechanisms to integrate corporate, divisional, IS and TIS planning.
3. There is a corporate focus on business drivers. In the PABX project the drivers are customer access and strategic directions of the Group. Cost optimisation is of secondary concern. This focus emphasises integration of functions.
4. The Group is structured to facilitate top management involvement with and support for IS and TIS initiatives.
5. There is an experienced technical IS and TIS team with a business orientation whose contribution to the business is recognised by users due to formal performance evaluation procedures.

This single case study is not seen as being specifically generalisable. Its purpose is to provide a context for theoretical considerations. The issues raised by the case are considered further.

5 Separation or integration

Telecommunications technologies traditionally have been kept separate from information technologies, for sound reasons: the differing technologies (data vs. voice); philosophies (completeness and accuracy for data vs. timing and availability for voice); architectures (point to point specific transmissions vs. broadcast and switchable modes); and staff skills (software programming vs. electronic engineering). With increasing digitalisation of communications technologies this separation may no longer be supported. Digital PABXs route voice as well as data transmissions; carrier voice networks have become digitised and data, voice, image and video can be satisfactorily and securely transmitted simultaneously over the same medium. The emphasis needs to change from technology to service levels.

In the face of this operational integration, why should strategic TIS planning receive special consideration? Case ABC shows that TIS are used to develop and maintain an infrastructure throughout an organisation. ABC's TIS services are pervasive, touching every operational part of the organisation. The potential impact of performance failure is, therefore, across the whole organisation. In addition, the high capital costs; multiplicity and complexity of technologies; the enabling nature of the infrastructure for other technologies; and the long lead and roll-out times required to implement the infrastructure all emphasise the special nature of TIS. In recognition of the corporate significance of TIS, the indicated corporate practice (in ABC) and the difficulties in TIS management outlined above, planners and researchers alike should plan for strategic TIS explicitly.

6 Discussion

Two issues of importance have been highlighted in this paper: the absolute necessity for integration of TIS strategic planning with IS strategic planning and, paradoxically, cogent arguments as to why TIS should be considered a special case. After considerable efforts to develop corporate awareness of the importance of SISP it is difficult to perceive any advantage to organisations or to IS researchers from ignoring prior SISP research and experience. Prior experience suggests that all IS planning processes (including for TIS) must be integrated. Some researchers (eg Premkumar and King, 1990) argue for the importance of strategic telecommunications planning in isolation, however, if integration with SISP is accepted then the argument becomes not one of importance in isolation but of special treatment in an integrated model.

The paradox presented by these arguments needs to be addressed in theoretical models as well as in industry practice. Business practice, as indicated by the single case ABC, suggests that theoretical models which do not address this paradoxical situation are incomplete. The single case ABC shows that this issue of integration / separation can be achieved practically. Further exploratory research is required to identify the complexities within which theoretical model(s) can be developed. Recent criticisms of the conduct of exploratory research by survey method suggest that this research should be qualitative in nature. (Pinsonneault and Kraemer (1993). In addition to contributing to the development of IS theory, the creation of such theoretical model(s) would be of importance for application by firms seeking strategic advantage from TIS.

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